

**WHAT IS CLAIMED IS:**

1. A storing module for use in a communication network for buffering data,  
said storing module comprising:

a cell buffer unit having a first queue and a plurality of second queues  
operably configured to store protocol data units (PDU), wherein said first queue is  
further configured to receive a PDU from said communication network;

a cell buffer status indicator operably configured to issue a first queue  
status signal and a second queue status signal, wherein said first queue status  
signal indicates an occupancy status of said first queue and said second queue  
status signal indicates an occupancy of said plurality of second queues;

a cell buffer controller operably configured to forward a PDU received in  
said first queue to one of said plurality of second queues, wherein said plurality of  
second queues include at least a high priority queue and a low priority queue and  
said forwarded PDU is forwarded to one of said high priority queue and said low  
priority queue in accordance with an appended PDU priority indicator.

2. The storing module of Claim 1, wherein said cell buffer controller is further operably configured to forward and fetch a PDU to and from a remote memory unit comprising a dedicated queue for each of said plurality of second queues.

5

3. The storing module of Claim 2 further including a queue status register having an output operably configured to indicate a mapped location of a PDU buffered in said dedicated queue.

4. The storing module of Claim 2, wherein said cell buffer controller is further operably configured to forward said PDU to one of said dedicated queues in said remote memory unit only when an associated one of said plurality of second queues is fully occupied.

5        5.        The storing module of Claim 2, wherein said cell buffer controller is further operably configured to fetch forward said PDU to one of said dedicated queues in said remote memory unit when an associated one of said plurality of second queues is occupied and when said associate one of said plurality of second queues subsequently becomes partially occupied.

6.        The storing module of Claim 1, wherein said cell buffer unit comprising a dual port random access memory.

10        7.        The storing module of Claim 1, wherein a PDU comprises an asynchronous transfer mode cell.

8.        The storing module of Claim 1, wherein said cell buffer unit comprising a single port random access memory.

15        9.        The storing module of Claim 1, wherein high priority comprises real-time data and low priority comprises non-real-time data.

10. A buffering system for use in a communication network for buffering data,  
said buffering system comprising:

a cell buffer unit having a first queue and a plurality of second queues  
operably configured to store protocol data units (PDU), wherein said first queue is  
further configured to receive a PDU from said communication network;

a cell buffer status indicator operably configured to issue a first queue  
status signal and a second queue status signal, wherein said first queue status  
signal indicates an occupancy status of said first queue and said second queue  
status signal indicates an occupancy status of said plurality of second queues;

a cell buffer controller operably configured to forward a PDU received in  
said first queue to one of said plurality of second queues, wherein said plurality of  
second queues include at least a high priority queue and a low priority queue and  
said forwarded PDU is forwarded to one of said high priority queue and said low  
priority queue in accordance with an associated priority indicator appended to  
said forwarded PDU;

a remote memory device having a dedicated queue for each of said second  
queues, wherein said cell buffer controller is further operably configured to  
forward and fetch a PDU to and from said remote memory device.

11. The buffering system of Claim 10, wherein said cell buffer controller is further operably configured to forward a PDU received in said first queue to one of said dedicated queues only when an associated one of said high priority queue and said low priority queue is fully occupied.

12. The buffering system of Claim 10, wherein said cell buffer controller is further operably configured to fetch a PDU from one of said dedicated queues when an associated one of said high priority queue and low priority queue becomes partially occupied.

13. The buffering system of Claim 10, wherein said cell buffer unit comprises a dual port random access memory.

14. The buffering system of Claim 10, wherein a PDU comprises an asynchronous transfer mode data cell.

15. The buffering system of Claim 10, wherein said cell buffer unit comprises  
a single port random access memory.

16. The buffering system of Claim 10 further including a queue status register  
having an output operably configured to indicate a mapped location of a PDU  
buffer in one of said dedicated queues.

17. A method of buffering protocol data units (PDU)s in a communication network, said method comprising:

issuing a first queue status signal indicating a ready status to receive a PDU from said communication network;

5 receiving said PDU in said first queue;

issuing a second queue status signal indicating an occupancy status of said plurality of second queues;

10 forwarding said PDU received in said first queue to one of a plurality of second queues comprising a at least a high priority queue and a low priority queue in a local memory unit in accordance with a priority indicator appended to said PDU;

forwarding said PDU to a remote memory device when a select one of said plurality of second queues in said local memory device is occupied.

15 18. The method of Claim 17 further comprising fetching a PDU from said remote memory device for placement in a select one of said plurality of second queues when said select second queue becomes partially occupied.

19. The method of Claim 17 further comprising configuring said remote memory with a dedicated queue corresponding to each of said plurality of second queues in said local memory device.

5

20. The method of Claim 17 further comprising fetching a PDU from said high priority queue for transmission to a communication port associated with said communication network prior to fetching a PDU from said low priority queue for transmission to said communication port.

10

21. The method of Claim 17 further comprising mapping a memory location of a PDU buffered in said remote memory device.

22. The method of Claim 17, wherein said PDU is an asynchronous transfer mode data cell.

15